

W. STEFFE.  
Cooking Range.

No. 86,785.

Patented Feb. 9, 1869.

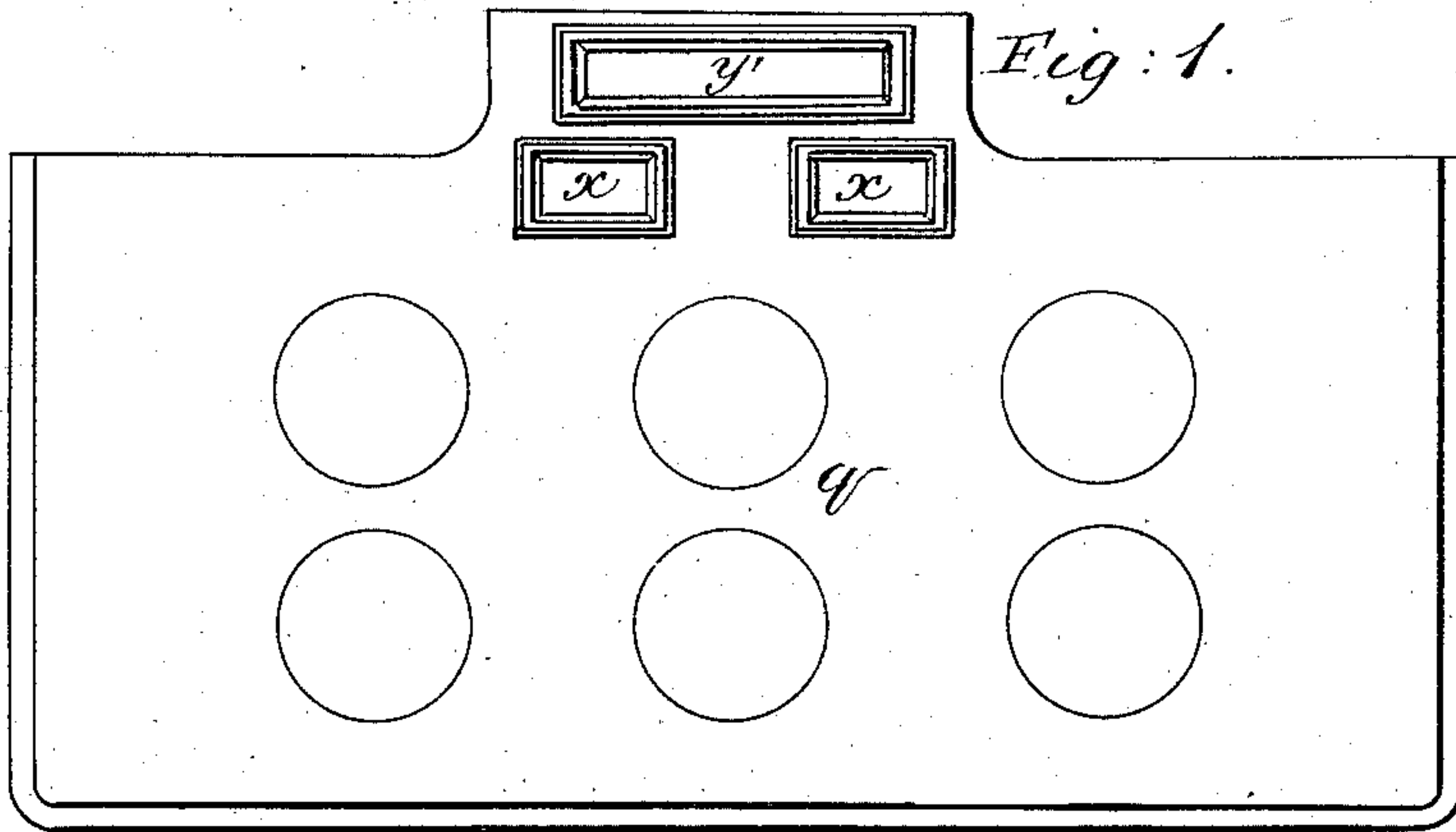


Fig: 1.

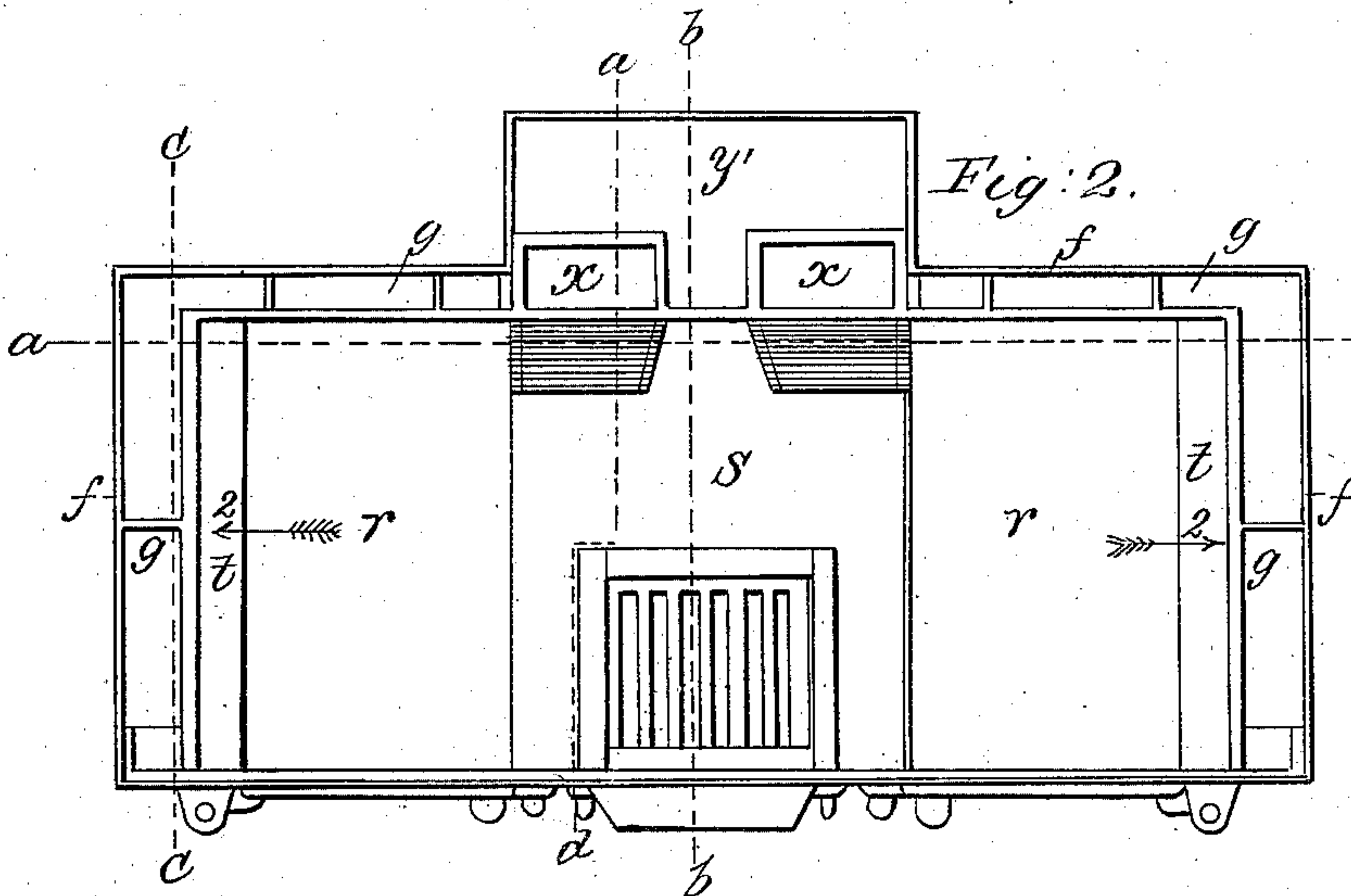


Fig: 2.

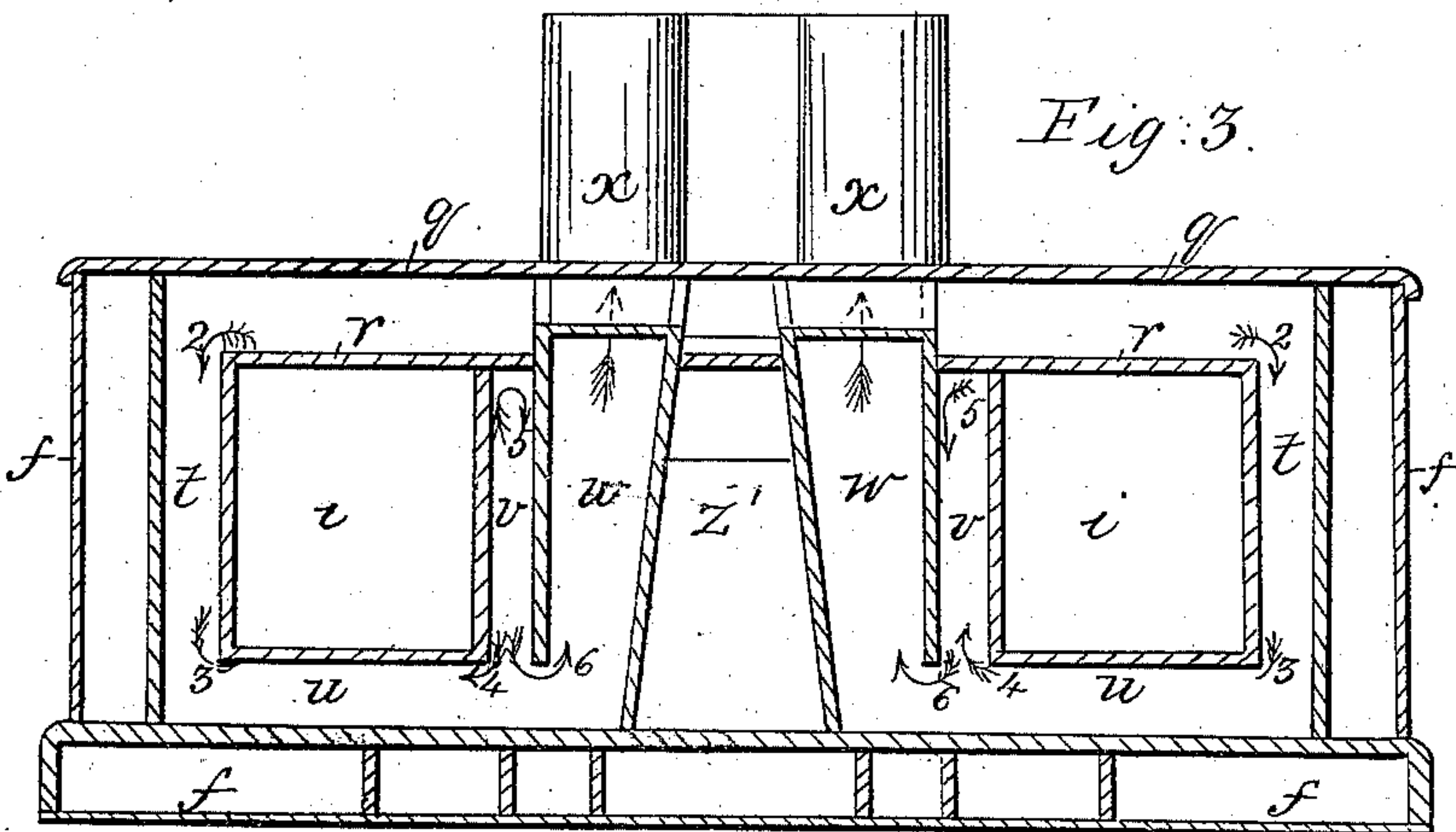


Fig: 3.

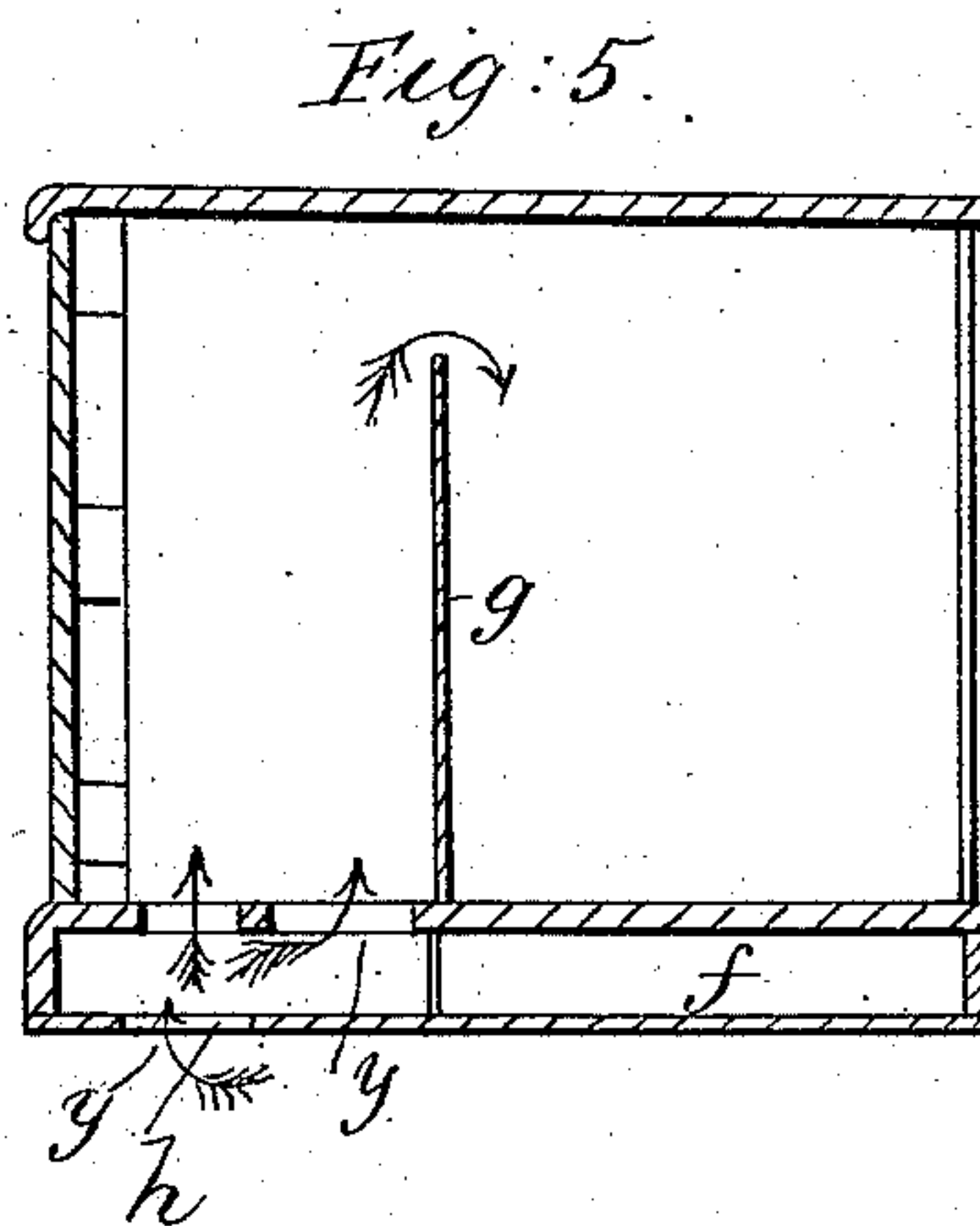
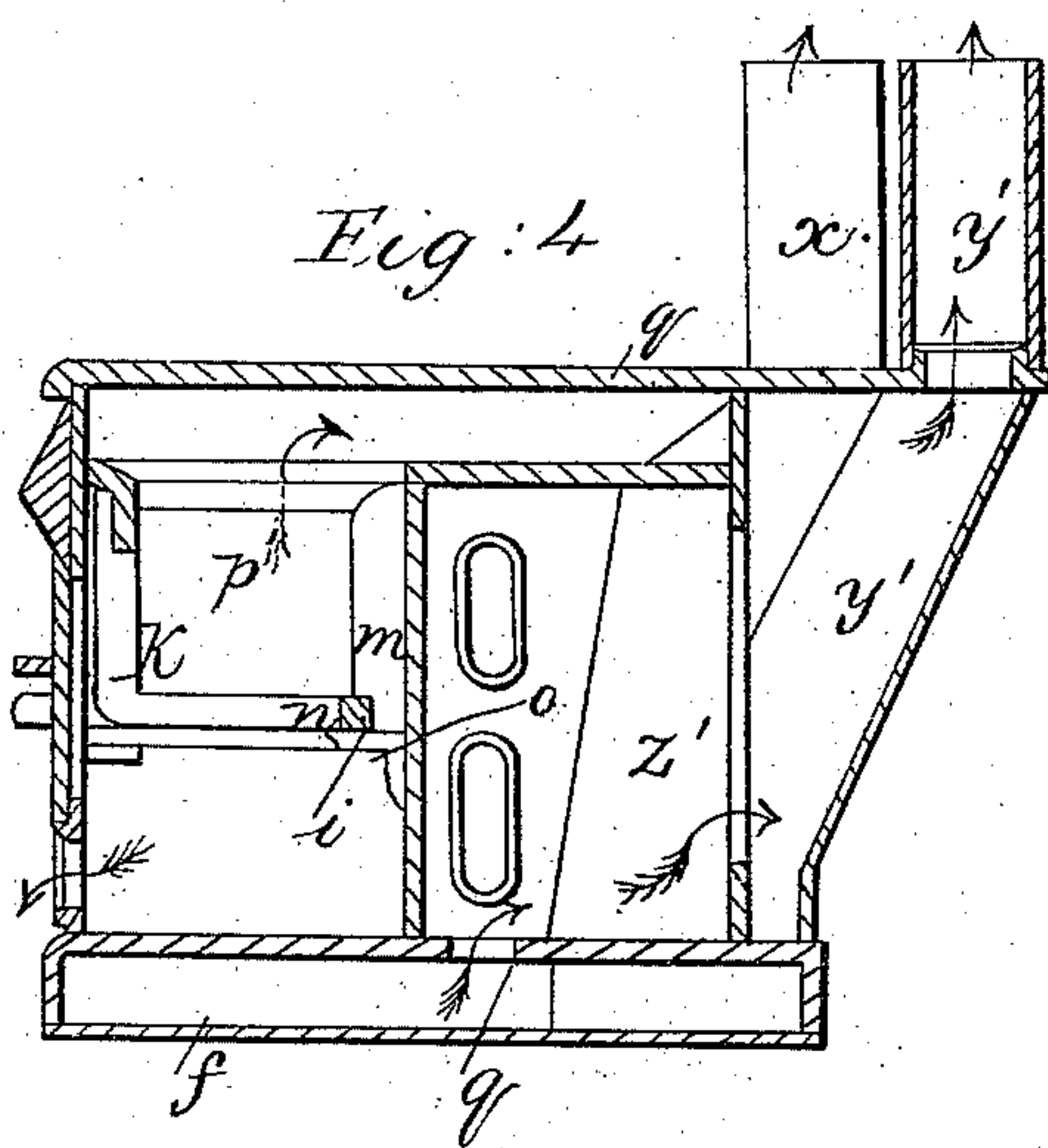
Witnesses;  
J. Smith.  
L. B. Jones

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Wm. Steffe.  
by atty  
J. D. Everett.

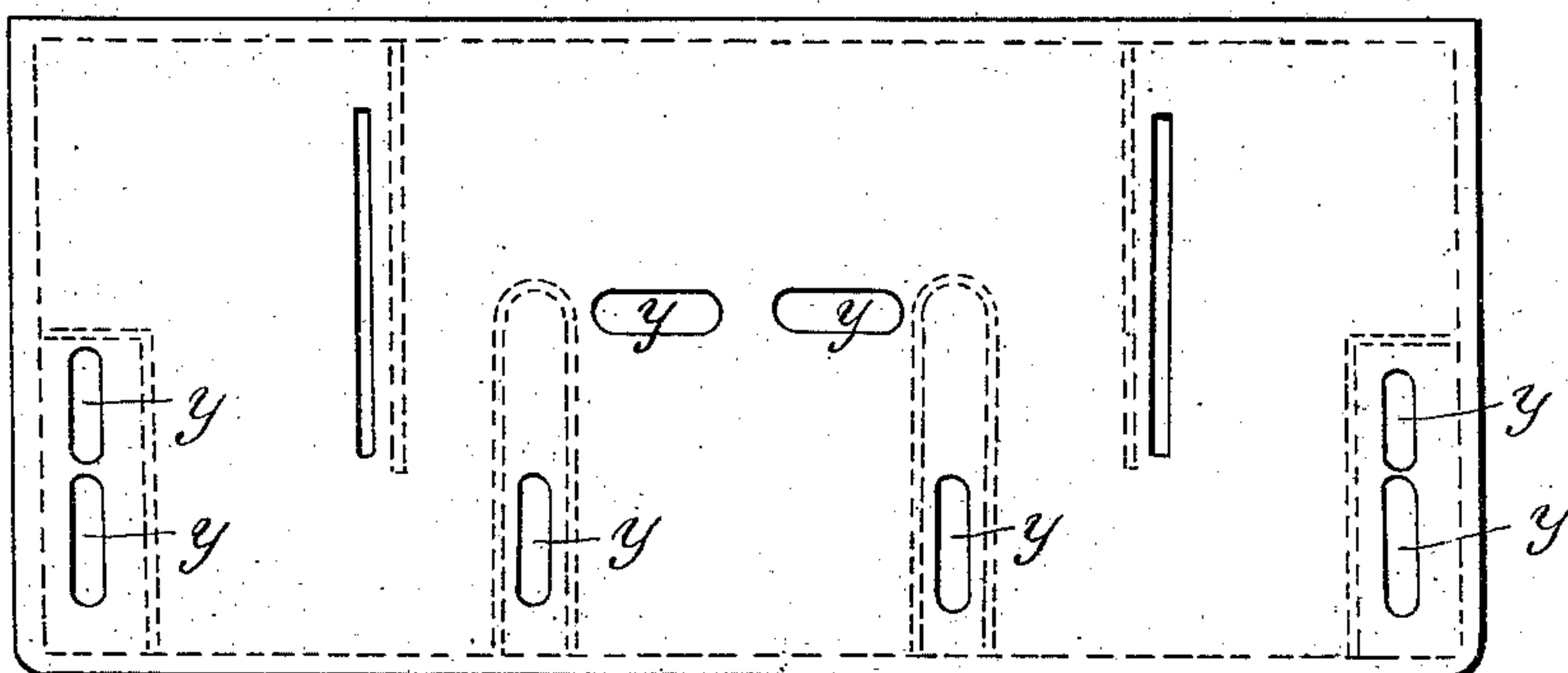
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*Fig: 6.*



Witnesses  
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L. E. Jones.

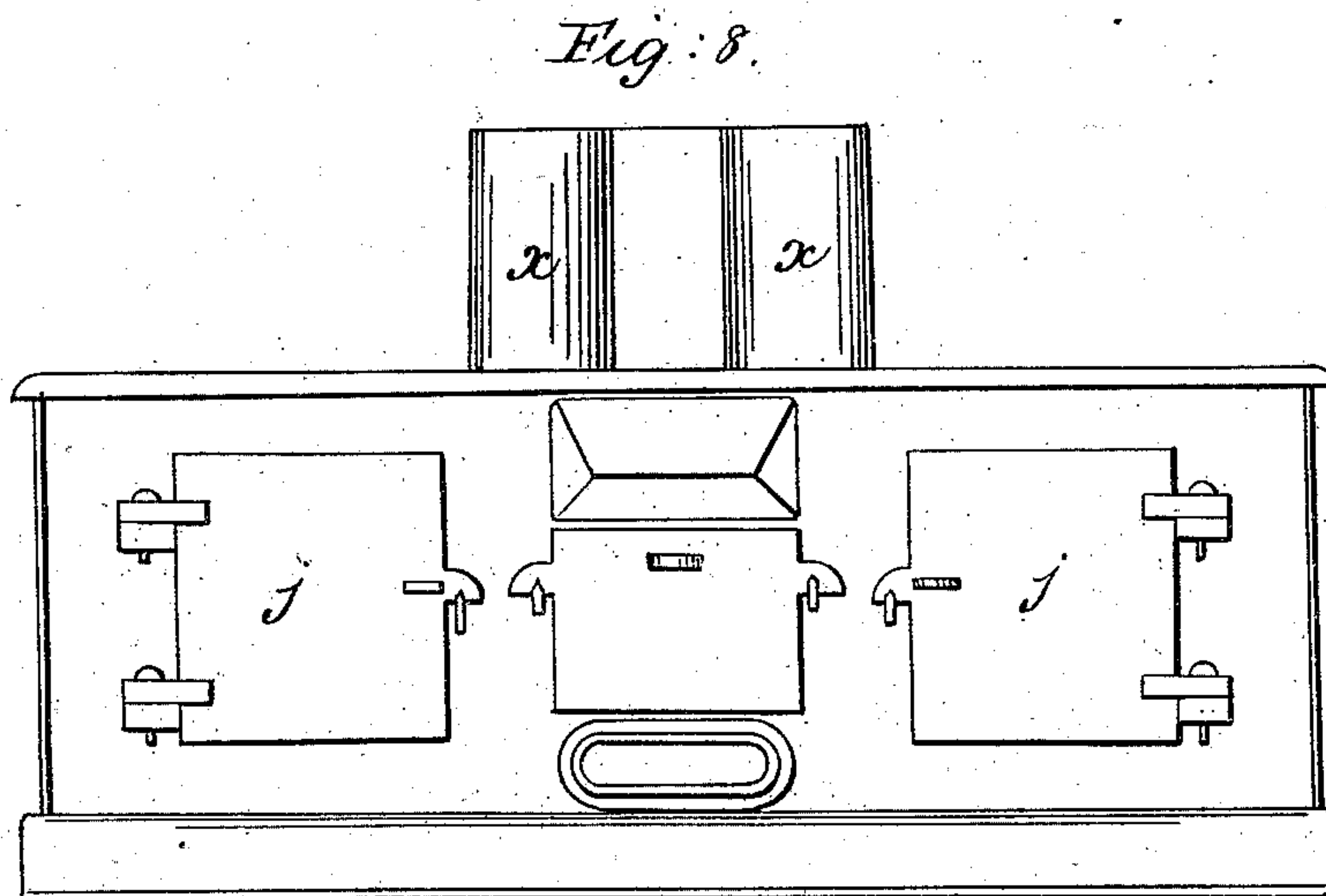
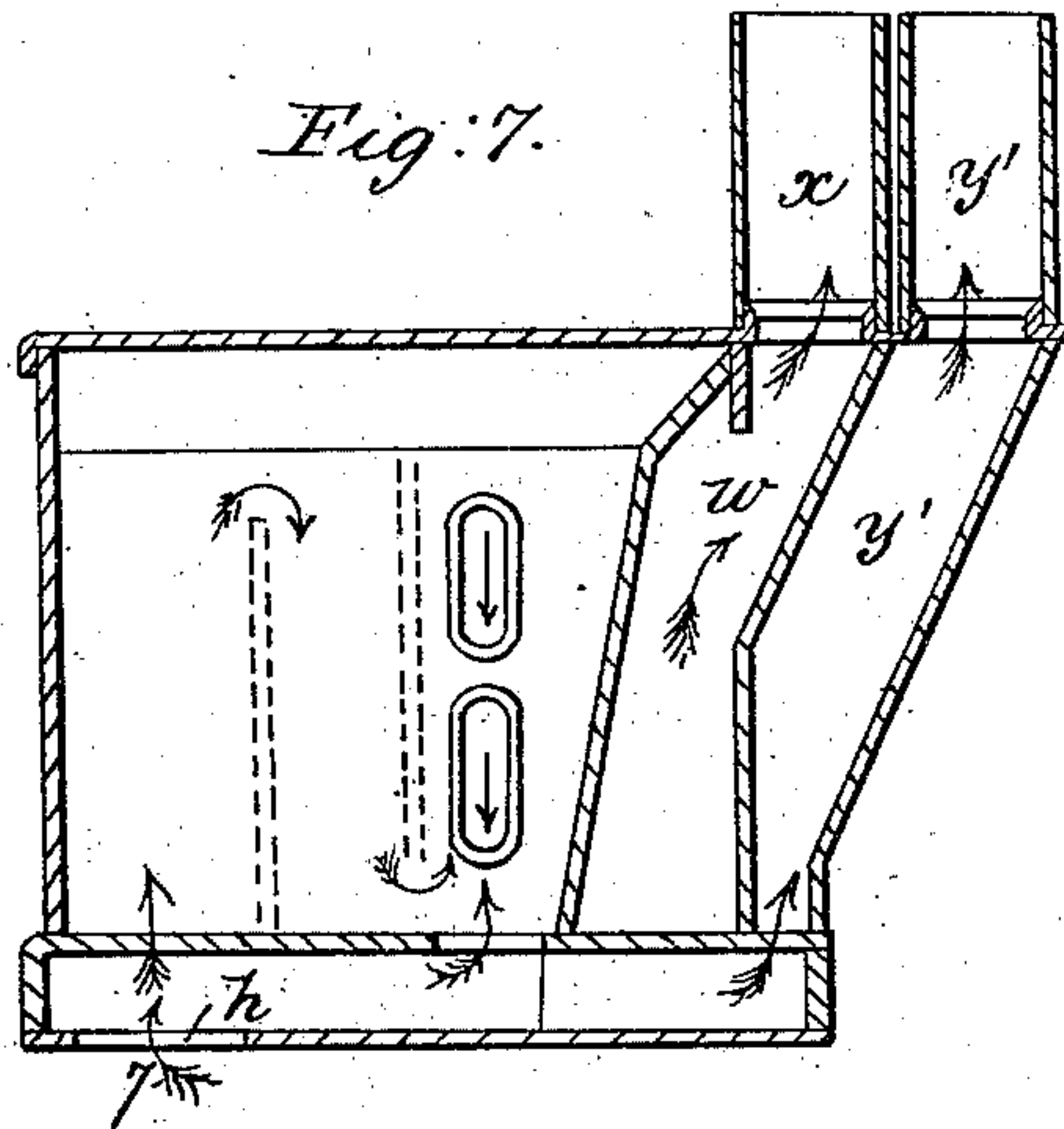
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3 Sheets—Sheet 3.

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by Atty D. J. Everett.



# United States Patent Office.

WILLIAM STEFFE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR  
TO HIMSELF AND JESSE REYNOLDS, OF SAME PLACE.

Letters Patent No. 86,785, dated February 9, 1869.

## IMPROVEMENT IN COOKING-RANGES.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern:

Be it known that I, WILLIAM STEFFE, of the city of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement on Ranges for Cooking and Heating-Purposes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters and marks thereon, which said drawings form part of this specification, and show a range constructed under my invention—

Figure 1 being a top view of the range;

Figure 2, a view of the interior, when the top plate is removed;

Figure 3, a longitudinal sectional view, on the line *a* of fig. 2, the top plate being in place;

Figure 4, a view by transverse section, on the line *b* of fig. 2;

Figure 5, a transverse sectional view, on the line *c* of fig. 2;

Figure 6, a view of the upper surface of the bottom plate, the other parts of the range above it being removed;

Figure 7, a view by transverse section, on the line *d* of fig. 2; and

Figure 8, a front view of the range.

In all of these figures, where like parts are shown, like marks and letters are used to indicate the parts.

My invention relates to that class of ranges known as flat-top ranges, for cooking and heating-purposes. Such ranges, as now set up for use, are surrounded by and supported upon brick-work, occupying considerable space in the kitchen, and causing the loss of considerable heat. This range is so constructed that it may be put in the proper position for use without any brick-work, except such, if any, as may be required to elevate it from the floor or hearth.

I surround the range proper—the front ends or sides, back, and bottom—with tin, or other suitable like material, the space between this tin exterior and the range being used as air-flues.

The drawings, forming part of this specification, show this tin casing around the back, bottom, and ends, the front being omitted in order the better to exhibit the doors and openings to the fire-pot and ovens.

When the front is also encased, suitable air-flues will be between the casing and the front plates, and be in proper connection with the other flues for heating the air between the casing and the back, ends, and bottom of the range.

This tin casing *f* is, in most of the figures, indicated by blue coloring.

Between the tin and the plates of the range are properly secured, at certain points, check-plates, which give direction to the air, so that it has an upward and downward, or tortuous course. In general, these plates are marked *g*, and their position further indicated by the

arrows in blue color, which designate the track of the heated air.

Between the tin and the bottom plate, are like deflecting-plates, *g*, for giving direction to the air, there being suitable openings, *h*, in the tin. In connection with these, there can be pipes, or tubes, for conveying in the air from the exterior of the building.

The flues for conducting the products of combustion and heat from the fire-pot, around the ovens, *i*, the doors of which are marked *j*, and forward and upward, and under the top plate, to the smoke-pipe, are generally indicated by the arrows in red, which designate the track of the products of combustion.

Usually, the grate of ranges is seated on a bearing-bar, or rest, inside of the fire-pot, the back of the grate necessarily offering, by its construction, resistance to the draught, and allowing the coals to lodge in it, and remain unconsumed.

The grate, *k*, of this range, has a rest, like a socket, in a recess, *l*, formed in the back-lining, tile, or water-back, *m*, into which the bar *n* fits.

At each corner there is a projection, *o*, for sustaining the grate in the recess. The collecting of unconsumed coals and ashes, and the interruption of the passage of the air and of combustion, are therefore thus avoided.

The flues formed by the plates of the range and by the deflecting and directing-plates of the casing, for conducting the heat and products of combustion from the fire-pot to the smoke-pipes, on the one hand, and from the atmosphere to the heat-flue on the other hand, can readily be seen by the following track, marked out, respectively, by the red and by the blue arrows.

The heat and products of combustion from the fire-pot *p* will fill the space between the top plate *q* and plates *r* and *s*, the track being indicated by arrow 1, fig. 4, and pass down, and by the side of the oven, through the flue *t*, arrow 2, fig. 3, under the oven, in flue *u*, arrow 3, fig. 3, be deflected up in flue *v*, arrow 4, by the inner side plate of the oven, and down, arrow 5, and out of flue *v*, arrow 6, into the ascending-flue *w* and smoke-pipe *x*. Thus the heat will be conveyed to all parts of the top plate of the range, and to all the plates of the ovens, and to all the plates in contact with the air-flues, that it is possible to have exposed to the products of combustion.

It must be noticed that the track of the heat, here recited, applies to the flues and ovens on both sides of the fire-pot.

The atmospheric air, entering through the holes *h*, arrow 7, and being deflected backward and forward by the plates between the tin casing and the bottom plate of the range, as shown by fig. 6 of the drawings, will pass through the openings *y*, into the air-flues *z*, and out through the main flue *z'*, into the hot-air pipe *y'*.

As these flues and the plates for deflecting and giving the heating-air an upward movement, or current, are



clearly indicated by the blue lines and arrows, in the different figures of the drawings, a special recital of the track of the air is not needed to a full understanding of the invention, and is therefore, to avoid prolixity, omitted.

I am aware that stoves and ranges have been encased in iron plates and in brick-work, and that deflecting and directing-plates and dampers in the air-heating spaces, and passages for the products of combustion, are of common use, and I therefore limit my claims to the use of such plates and encasing as are specially herein set forth, and referred to in the following claims.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The encasing with tin, or any other similar or equivalent material, the several exterior parts of a flat-top range, for the purpose of retaining all the heat generated by the fuel used in such range, and conveying it to some certain point or points of distribution, as herein set forth, substantially.

2. Providing such casing, as well as the hot-air space around the fire-pot, with one or more checks, or plates, or partitions, as will compel the external cold air, admitted to be heated, to traverse and impinge upon the

entire hot or heated surfaces of such parts of the range and fire-pot, before being conveyed to its point of distribution, as herein shown and described.

3. The arrangement and combination of the space, formed by the casing of a flat-top range, with the hot-air space around the fire-pot, and their several checks, or division-plates, and the space, or chamber, back of the fire-pot, and the several openings for the admission of cold external air, and the arrangement of the closed pipes, or flues, for carrying off the products of combustion, after they have passed around the ovens, all as described, whereby the external cold air, which is admitted to be heated, has the entire available hot surface of the range to traverse, and come in contact with, before its distribution into the apartments to be warmed. This arrangement and combination, as described, for heating and warming-purposes only.

This specification signed, this 30th day of September, 1868.

WILLIAM STEFFE.

Witnesses:

AND'W J. BOSWELL,  
FREDERICK ARNET.